REMARKS / ARGUMENTS

At the outset, Applicants are pleased to note that the Examiner considers the subject matter of claim 5, 6, and 12 to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and considers the subject matter of claim 13 as allowed.

Claims 1-12, 14, 15 and 17-23 are currently pending in the application. Claim 13 is allowed. Claims 1-4, 7-11, 14, 15 and 17-23 appear to be rejected. Claims 5, 6 and 12 are objected to. Claims 1, 6, 13, and 14 are amended. Claim 5 is cancelled without prejudice.

The Examiner has rejected claims 1, 13 and 14 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner states that claim 1 recites the limitation "the volume" in line 2.

The Examiner states that claim 13 recites the limitation "the volume" in line 2.

The Examiner states that claim 14 recites the limitation "the volume" in line 2.

The Examiner states that there is insufficient antecedent basis for this limitation in the claims

The Examiner also states that the changes made to 35 U.S.C. § 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from and international application filed before November 29, 2000. Therefore, the prior art of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

The Examiner has rejected claims 1-4, 7-11, 14, 15, and 17-23 under 35 U.S.C. § 102(e) as being anticipated by Konstantinou et al. (Reference A: U.S. Patent No. 6,584,201, hereinafter as Konstantinou).

Regarding claim 1, the Examiner found that Konstantinou discloses a system for automatically adjusting a sound level comprising a sound-emitting device providing a sound level; a directional microphone (i.e., sensor circuit) for sensing the sound level (i.e., amplitude of the detected audio signal) (Fig. 1, reference 22; column 3, lines 24-28; claim 1); a microprocessor that calculates the difference between the calculated reference sound-to-noise ratio and calculated current sound-to-noise ratio, whereby "the sound-to-noise ratio is a ratio in which received sound level is the numerator and the difference between total received noise level and received sound level is the denominator" (i.e., a difference circuit) (column

5, lines 11-59); the microprocessor then goes to a decision step to determine whether the current sound-to-noise ratio is different from the reference sound-to-noise ratio, "if there is a difference between the two sound-to-noise ratio, this signifies that emitted sound level may need to be adjusted in order to maintain the original sound-to-noise ratio" (i.e., control circuit for generating a control signal that effects at least one of attenuation, augmentation and maintenance of the amplitude of audio signals) (Column 5, lines 43-59). The Examiner states that on page 19, lines 1-3 and 23-24, Applicants argue "Konstantinou makes no provision for user input" the Examiner states that this argument is not persuasive because Konstantinou discloses a microprocessor located in the remote control device which utilizes the received sound level and the total received noise level to calculate a reference sound-to-noise ratio. If a volume up/down control is pressed by the operator (i.e. user input), the remote control device sends the appropriate signal to the sound emitting device to increase or decrease the sound level, and a new reference sound-to-noise ratio is calculated (i.e. obtaining a reference audio signal amplitude from a user)(abstract).

Regarding claim 2, the Examiner found that Konstantinou discloses an amplifier (Fig. 1, reference 14 and 16; column 3, lines 49-58) coupled to the microphones in order to amplify the

signal provided by the microphones and sends them to the microprocessor (i.e. amplifier for amplifying the detected audio signal before it is outputted to the difference circuit).

Regarding claim 3, the Examiner found the Konstantinou discloses a directional microphone for detecting audio signals outputted by the sound-emitting device (Fig. 1, reference 22).

Regarding claim 4, the Examiner provided that Konstantinou discloses amplifiers coupled to the microphones in order to amplify the signal provided by the microphone and send them to the microprocessor via A/D converter (i.e. provides the audio signal amplitude in digital form)(Fig. 1, reference 62 and 64).

Regarding claim 7, the Examiner found that Konstantinou discloses an apparatus that will increase or decrease emitted sound level in order to maintain the original sound-to-noise ratio if there is a difference between the current sound-to-noise ratio and reference sound-to-noise ratio by a predetermine amount (i.e., attenuation of amplitude when amplitude of the sensor circuit output signal exceed the reference audio signal amplitude by a predetermine magnitude) (Fig. 2, reference 140, 150 and 155; column 5, lines 49-52; column 6, lines 32-39).

Regarding claim 8, the Examiner found that Konstantinou discloses an apparatus that will increase or decrease emitted sound level in order to maintain the original sound-to-noise ratio if there is a difference between the current sound-to-

noise ratio and reference sound-to-noise ratio by a predetermine amount (i.e., augmentation of the amplitude of the audio signals generated by the audio device when the reference audio signal amplitude exceeds the amplitude of the sensor circuit output signal by a predetermined magnitude) (Fig. 2, reference 140, 150 and 155; column 5, lines 49-52; column 6, lines 32-39).

Regarding claim 9, the Examiner stated that Konstantinou's apparatus will maintain the amplitude of the audio signal if there is no difference between the current sound-to-noise ratio and the reference sound-to-noise ratio. (Fig. 2, reference 140; column 5, lines 46-48).

Regarding claim 10, the Examiner found that Konstantinou discloses a remote control device that contains a signal transmitter, which communicates with the volume up control and volume down control to transmit signal to sound emitting device (i.e., transmitter circuit to transmitting the control signal to a control signal receiver of the audio device)(Fig. 1, reference 18, 20, 30 and 34; column 4, lines 33-37 and lines 49-56).

Regarding claim 11, the Examiner found that Konstantinou discloses activation or deactivation of the remote control device (i.e. permits a user to activate or deactivate the apparatus) (column 4, lines 61-62)

Regarding claim 14, the Examiner found that Konstantinou discloses a method of automatically adjusting a sound level of a

sound-emitting device comprising the steps of measuring a second level emitted from the sound-emitting device using a directional microphone (i.e. detecting an audio signal generated by the audio device; generating a detected audio amplitude signal representative of an amplitude of the detected audio signal) housed in a remote control device operable by a user to manually increase or decrease the sound level (i.e. obtaining a reference audio signal amplitude from a user); calculating a reference sound-to-noise ration (sound level divided by the different between the total received noise level and the sound level) and a current sound-to-noise ration (measured sound level divided by the difference between the measured total received noise level and the measured sound level); and adjusting the sound level when the current sound-to-noise ration does not equal the reference sound-to-noise ratio (i.e. determining a difference signal and generating a control signal that adjusts the volume) (column 5, lines 11-59; claim 7).

Regarding claim 15, the Examiner found that Konstantinou discloses amplifying the detected sound level (Fig. 1, reference 14 and 16; column 3, lines 49-58).

Regarding claim 17, the Examiner found that Konstantinou discloses an analog-to-digital converter to convert the sound level to a digital sound level (Fig. 1, reference 62 and 64).

Regarding claim 18, the Examiner found that Konstantinou discloses calculating a reference sound-to-noise ration and current sound-to-noise ratio; and adjusting the sound level when the current sound to noise ration does not equal said reference sound-to-noise ration.

Regarding claim 19, the Examiner found that Konstantinou discloses transmitting a remote signal to the sound-emitting device to instruct the sound-emitting device to adjust the sound level.

Regarding claim 20, the Examiner found that Konstantinou discloses a method that will increase or decrease emitted sound level in order to maintain the original sound-to-noise ration if there is a difference between the current sound-to-noise ratio and reference sound-to-noise ratio by a predetermined amount (Fig. 2, reference 140, 150 and 155; column 5, lines 49-52; column 6, lines 32-39).

Regarding claim 21, the Examiner found that Konstantinou discloses a method that will increase or decrease emitted sound level in order to maintain the original sound-to-noise ratio if there is a difference between the current sound-to-noise ratio and reference sound-to-noise ratio by a predetermined amount (Fig. 2, reference 140, 150 and 155; column 5, lines 49-52; column 6, lines 32-39).

Regarding claim 22, the Examiner found that Konstaninou discloses a method that will maintain the amplitude of the audio signal if there is no difference between the current sound-to-noise ratio and the reference sound-to-noise ratio (Fig. 2, reference 140; column 5, lines 46-48.

Regarding claim 23, the Examiner found that Konstantinou discloses a directional microphone designed to receive sounds from a specific direction (i.e., acoustic signal sensor) and "is configured in a remote control device such that it is adjacent to and points in the same direction as remote signal transmitter, thus providing the greatest likelihood that directional microphone is pointing at sound-emitting device" (Fig. 1, reference 22, and 36; column 3, lines 24-35).

The Examiner objected to claims 5, 6 and 12 as being dependent upon a rejected base claim. However, the Examiner indicated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The Examiner has allowed claimed 13, stating that Konstaninou discloses a system for automatically adjusting a sound level, which determines whether emitted sound level from a sound-emitting device is greater or less than a threshold amount in order for the function of increasing or decreasing emitted sound to perform as usual or not. However, the Examiner states

that Konstantinou does not expressly disclose how the sound level would be used to perform the operation of automatically adjusting the sound level or not. Therefore a sound activation circuit for transferring the difference signal to the control circuit when the directional microphone detects an audio signal is neither anticipated nor made obvious by the prior art.

These rejections and objections are respectfully traversed in view of these amendments and remarks.

Konstantinou et al. appear to disclose an automatic remote control device and method that compensates for ambient, environmental noise changes and sudden changes in program material volume. The microphones and circuitry associated with the volume control apparatus are located in an autonomous, preferably portable, remote control unit that will work with any existing audio/video device that is configured to respond to a remote control input. In one embodiment, the remote control device comprises a microprocessor, at least one directional microphone for receiving a sound level emitted from a sound-emitting device, and at least one omni-directional microphone for receiving the total noise level in the vicinity of the remote control device. The microprocessor located in the remote control device utilizes the received sound level and the total received noise level to calculate a reference sound-to-noise ratio. If a volume up/down control is pressed by the operator,

the remote control device sends the appropriate signal to the sound-emitting device to increase or decrease the sound level, and a new reference sound-to-noise ratio is calculated. If the volume up/down control has not been used, a timed polling loop periodically measures the sound level and the total received noise level so as to calculate a current sound-to-noise ratio and to determine whether the sound-to-noise ratio has changed. If the sound-to-noise ratio has changed, then the remote control device sends the appropriate signal to the sound-emitting device to adjust the sound level so that the original sound-to-noise ratio is maintained. Hysteresis, in which the device determines whether a pre-determined amount of time has passed since the device last adjusted the sound level, is preferably utilized to prevent continuous fluctuations of the sound.

The Applicants disclose an apparatus and method for remotely and automatically adjusting the volume of a remotely controlled audio device. In one embodiment, the apparatus comprises a sensor circuit for continuously detecting audio signals generated by the audio device, a difference circuit for determining the difference between the amplitude of the detected audio signals and a reference audio signal amplitude and for outputting a signal that represents this difference, a difference signal transfer circuit having an input for receiving the difference signal and an output wherein the difference

signal is coupled to the output when the sensor circuit outputs a signal that indicates an audio signal has been detected, and a control circuit for generating a control signal that effects attenuation, augmentation or maintenance or the amplitude of the audio signals generated by the audio device in accordance with the difference signal when the sensor circuit detects an audio signal.

Applicants have amended claims 1, 13, and 14 to recite the limitation "a volume" rather than "the volume" in order to establish antecedent basis for the limitation in the claims. Applicants respectfully suggest that these amendments thereby traverse Examiners rejections of the claims based upon 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as their invention.

Applicants have amended claim 1 such that the content of claim 1 now contains the subject matter of claim 5 rewritten in independent form including all of the limitations of the base claim and any intervening claims in strict compliance with the requirements of the Examiner. Having done this, Applicants have canceled claim 5 and amended claim 6 to depend upon claim 1. Applicants respectfully suggest that, in light of the amendment to claim 1, claim 1 should now be allowed. Applicants also

suggest that claims 2-4, 6-12 are now also allowable through dependency.

Concerning the Examiner's § 102(e) rejections of claim 14, Applicants have amended claim 14 such that the content of claim 14 now includes the additional step of transferring the difference signal to the control circuit by means of a difference signal transfer circuit when an audio signal is detected. Applicants respectfully suggest that this additional step is supported in the specification and that Konstantinou does not disclose this step of Applicants' invention. Applicants respectfully suggest that, in light of the amendment to claim 14, claim 14 should now be allowed. Applicants also suggest that claims 15-23 are now also allowable through dependency on claim 14.

All of the remaining claims in the application are now believed to be in condition for allowance. Re-examination and favorable reconsideration in light of the above amendments and the following comments are respectfully requested.

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In reply to Office Action of 8 April 2004

Attorney Docket No. 79485

The Examiner is invited to telephone Jean-Paul A. Nasser, Attorney for Applicants, at 401-832-4736 if, in the opinion of the Examiner, such a telephone call would serve to expedite the prosecution of the subject patent application.

Respectfully submitted,

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